COMMENTS UPON, AND NEW COMBINATIONS IN, HELIOPSIS (ASTERACEAE, HELIANTHEAE)

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Fisher (1957) rendered a taxonomic treatment of the genus Heliopsis in which he recognized 13 species. Two of these, H. rubra (= H. anomala) and H. parvifolia, are closely related congeners. The former was said to have red pales (hence its specific name), and was thought to be restricted to Baja California. Numerous subsequent collections have shown that the key character used by Fisher to distinguish H. rubra from H. parvifolia breaks down repeatedly and that yellow-paled populations of H. rubra also occur in Sonora along the coast line. Nevertheless, I concur with Fisher that H. rubra is a "good" species and that there is a syndrome of characters that distinguish it from H. parvifolia. Fisher listed several characters which distinguish between them, the most noteworthy being the large pubescent ray-achenes of H. rubra (5-8 mm long, vs 3-5 mm in H. parvifolia) and the densely tomentulose leaf axils (vs sparingly pubescent to glabrous in H. parvifolia).

Wiggins (1964), however, reduced H. rubra to varietal rank under H. parvifolia, restricting this to Baja California. He presumably would retain the coastal populations of Sonora (as shown in Fig. 1) in var. parvifolia. But the latter populations differ in no significant way from the Baja California populations, except that the pales are yellow and not reddish. It is likely that Wiggins looked upon these populations as somewhat intermediate to the Peninsula populations; this might account for his nomenclature.

In any case, I cannot distinguish between the coastal Sonoran plants and those from the Peninsula, but I do find a number of distinctions between these two populational sets and those from the montane regions of northcentral Mexico and the adjacent U.S.A., as shown in Fig 1.

Most of the characters which distinguish H. rubra from H. parvifolia, listed by Fisher in his original discription of the former, do tend to hold. To the 5 characters which he listed I would add the following:

H. rubra (=H. anomala)	H. parvifolia
1. Sprawling suffruticose, brittle-stemmed, shrublets	1. Erect, perennial herbs
2. Peduncles mostly 20-40 cm long	2. Peduncles mostly 10-20 cm long
3. Inner receptacular pales rounded to obtuse	3. Inner receptacular pales mostly acute

So far as known, the two taxa appear to be cleanly allopatric and among the several hundred specimens examined by me, I detected not a single intermediate, although the occasional character or two might appear

intermediate. Because of this I intend to recognize both as valid species in my treatment of the genus for Mexico. My views as to what might or might not constitute a variety are elaborated upon below.

Fisher (1957) was apparantly unaware that his newly described species, H rubra, had been described earlier as a species of Encelia, although this was pointed out by Blake (1945) who showed that E. anomala M.E. Jones was "in fact Heliopsis parvifolia A. Gray". Unfortunately, Blake did not make critical comparisons of Jones' type material (Blake selected the lectotype, POM, which was collected at Arroyo Undo Ranch, Loreto, Baja Calif. Sur) with H. parvifolia, noting that "the selection of a type is a matter of no great importance, since all three sheets [examined by Jones] are clearly conspecific..." Subsequently, however, Fisher has shown the populations to differ specifically, but he should have applied the earlier name, H. anomala, to these.

HELIOPSIS ANOMALA (M.E. Jones) B. Turner, comb. nov.-

Based upon Encelia anomala M.E. Jones, Extracts from Contr. 18: 82. 1933. TYPE: MEXICO. BAJA CALIF. SUR: Arroyo Undo Ranch, Loreto, 26 Oct 1930, M. E. Jones 27715; lectotype, POM; isolectotype LL, as selected by Blake (1945).

Heliopsis rubra Fisher, Madrono 12: 152. 1954.

Heliopsis parvifolia var. rubra (Fisher) Wiggins, in Shreve & Wiggins, Vegetation Fl. Sonoran Desert 2: 1529. 1964.

HELIOPSIS HELIANTHOIDES var. OCCIDENTALIS (Fisher) B. Turner, comb. nov.

Based upon Heliopsis helianthoides supsp. occidentalis Fisher, Ohio J. Sci. 57: 190. 1957.

Fisher did not recognize varietal taxa in his treatment of Heliopsis. His subsp. occidentalis from the northcentral and western U.S.A. intergrades extensively with the more southern var. scabra (Dun.) Fern. [= subsp. scabra (Dun.) Fisher], as may be ascertained from the examination of specimens from regions of periphery and as well-noted by Fisher himself (1958). I use the varietal category as a regional populational unit which intergrades (over a restricted zone) with peripheral morphogeographic units. By simple populational reasoning, one cannot expect two varieties to occur at a given site, rather one can expect to find populations that are variously intermediate, any individual from which might possess one or more characters of the two taxa concerned.

I use the term subspecies for clustering purposes or to call to the fore more divergent populational systems which do not normally intergrade. Because subspecies occidentalis, sensu Fisher, fulfills my definition of a variety, I have reduced it here.

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Fig. 1. Distribution of *Heliopsis anomala* and *H. parvifolia*